

No account is given of the most recent change in marine engineering, namely, the adoption of the steam turbine in place of reciprocating engines. The success of the steam turbine in this field is already so well assured that a revolution in marine engineering is promised. But there are, no doubt, good reasons for the omission. Experience in the use of steam turbines in ships is almost confined to this country, and naturally at present full information as to the results, mechanical and economic, of the use of turbines is only possessed by a few engineers, and is not generally available.

In this country we still rightly pride ourselves on retaining the highest position in shipbuilding and marine engineering. But, if we still do more work of this kind than any other nation, and if our best work is as good as any in the world, yet Dr. Bauer's book should remind us that in science, experience and skill, other nations now run us very close.

THE BIRDS OF ICELAND.

Beitrag zur Kenntnis der Vogelwelt Islands. By B. Hantzsch. Pp. vi + 341; illustrated. (Berlin: Friedländer and Son, 1905.) Price 12 marks.

SINCE Iceland lies on one of the main migration routes, namely, that which starts from Greenland and Iceland itself, and passes by the Færøes to the British Islands, its bird-fauna is naturally of special interest and importance. This is testified by the appearance within a comparatively short period of two works on the subject, namely, Mr. H. N. Slater's "Manual of the Birds of Iceland," published at Edinburgh in 1901, and the present larger and more pretentious volume. In addition to the general fauna, there is special interest attaching to Iceland as the chief European resort in former days of the gare-fowl, or great auk. The history of this lost bird and the literature relating to it the author reserves for a supplemental volume. Despite all that has been done by travellers and collectors, Mr. Hantzsch is of opinion that our knowledge of the bird-fauna of Iceland is still far from complete, much of the interior of the country being difficult of access and still imperfectly explored by collectors. Accordingly he is fain to admit that the last word on the subject still remains to be said.

The volume commences with an historical survey of the growth of our knowledge of Icelandic ornithology, with notices of the chief explorers and workers in this field of research, and a list of the more important memoirs and books treating of the subject. Then comes a detailed account of the author's own journeys in the island for the purpose of collecting specimens and personally observing the birds. This is followed by an interesting description of the main physical features of Iceland and the neighbouring islets, such as Grimsey in the north and the Westman group in the south, this being illustrated with a number of reproductions of photographs of the scenery taken by the author himself.

Special lists are given of the birds of Grimsey and the Westman Islands. Changes in the bird-fauna of the whole group of islands, and the general relationships of the fauna form the subjects of two succeeding chapters, a brief note being appended on domesticated species.

This completes the introductory portion of the subject, which occupies ninety-two pages, and the remainder of the text is devoted to the detailed synopsis of the birds. The total number of species, exclusive of the great auk, recorded in the preliminary list as definitely known to occur in Iceland is 120, in addition to which are a few of which the right to a place among the fauna is somewhat uncertain. Perhaps the most striking feature of the descriptive part of the work is the almost painful severity with which new fashions in ornithological nomenclature are followed, such appalling alliterations as *Merula merula merula* and *Gallinago gallinago gallinago* occurring with wearisome frequency. Without reiterating his own private opinion on nomenclature of this nature, which is now pretty well known, the reviewer may point out that when the typical form of a species is alone recorded, it is perfectly superfluous to add the terminal trinomial, *Merula merula* and *Gallinago gallinago* being in such cases apparently all that can possibly be required.

Excellent photographs of the eggs, nests, or breeding-haunts of some of the rarer species serve to enliven the text, and ornithologists will be greatly interested in the two pictures of the eggs and callow young of the great skua in their natural surroundings. The work will doubtless long remain the standard authority on Icelandic birds, at all events for German readers.

R. L.

OUR BOOK SHELF.

Neue Fische und Reptilien aus der böhmischen Kreideformation. By Prof. Dr. Anton Fritsch and Dr. Fr. Bayer. Pp. 34; plates ix. (Prague: Fr. Rivnac, 1905.)

VERTEBRATE fossils are not only rare, but also badly preserved, in the Cretaceous rocks of Bohemia. Palæontologists must therefore admire the enthusiasm of Dr. Anton Fritsch, who continues to devote to the interpretation of difficult fragments so much study as is evidenced by his numerous writings on these remains. In 1878 he published a complete synopsis of the subject as then understood. Now, with the aid of Dr. Franz Bayer in the determination of fishes, he again publishes an up-to-date treatise, including the discoveries of the last quarter of a century. The work is illustrated in Dr. Fritsch's usual style, and a few of the figures are revised drawings of specimens previously described.

Dr. Bayer's chapter on the Cretaceous fishes was originally published in the Bohemian language in 1902, but is now made more readily accessible in German. He describes evidence of several new genera and species, and concludes that in the Bohemian Chalk there are more varied representatives of the higher fishes than have hitherto been found below the Tertiary formations. In view of the fragmentary nature of most of the fossils, it must be

admitted that this conclusion needs confirmation from future discoveries before it can be definitely accepted. The specimens on which the new genera *Coryphænopsis* and *Bayeria* (Fritsch) are founded are certainly remarkable.

Dr. Fritsch's section of the work shows that all the usual groups of Cretaceous Reptilia are represented in the Bohemian rocks. There are undoubted fragments of Plesiosaurs, and there is one interesting brain-cast which the author describes as probably referable to *Polyptychodon*. Dr. Fritsch, however, overlooks the fact that the skull of *Polyptychodon* is actually known in England, and is undoubtedly Plesiosaurian or Pliosaurian, not Mosasaurian. Chelonian remains occur, evidently representing turtles related to the small *Chelone Benstedii* from the English Chalk. Some fragments appear to be Mosasaurian, but those described under the new name of *Iseosaurus litoralis* are extremely problematical. Other fragments, ascribed without much reason to Dinosauria, scarcely suffice to justify the new names bestowed on them. Some good new figures of the interesting wing-bones of the small *Pterodactyl*, *Ornithocheirus hlawaci*, are given, and the volume concludes with a systematic list of species.

A. S. W.

Die Bedeutung des Experimentes für den Unterricht in der Chemie. By Dr. Max Wehner. Pp. 62. (Leipzig and Berlin: B. G. Teubner, 1905.) Price 1.40 marks.

THIS brochure forms part of a "Sammlung naturwissenschaftlich-pädagogischer Abhandlungen," and is very hard reading for an ordinary English chemist. It is divided into two parts, the first of which deals with the importance of experiment for attaining the object of chemical instruction, and the second with the importance of experiment in relation to method in chemical instruction. It is hard reading in the sense that one has to wade through detailed arguments which culminate in conclusions such as "description does not suffice for the instruction of the pupil in chemical processes," and "the development of the laws concerning chemical processes from experimental observations is more effective for chemical teaching than their deduction from quoted examples." The work is, in fact, an example of pure pedagogical exercitation, and it may be recommended with confidence only to those who have a liking for that kind of literature.

A. S.

Monographie des Cynipides d'Europe et d'Algérie. By l'Abbé J. J. Kieffer. Tome second. 2me. fascicule. Pp. 289-748; plates ix-xxi. (Paris: A. Hermann.) Price 18s.

THIS is the conclusion of vol. vii. *bis* of André's great series of monographs, "*Spécies des Hyménoptères*," and completes the *Cynipides*, or gall flies. The previous portions have already been noticed in NATURE (vol. lxvii. pp. 124-5, December 11, 1902, and vol. lxviii. p. 221, July 9, 1903), and the part now published completes the *Cynipides*, 5e tribu, *Figitinæ*; and also includes the *Evaniinæ* (divided into two tribes, *Evaniinæ* and *Gasteruptioninæ*), the *Stenophanides*, *Trigonulides*, *Agriotypides*, general supplements, a "*Catalogue méthodique et synonymique*," extending from pp. 653 to 741 (double columns), and general indices.

The plan of the work is uniform throughout, and as the previous portions have already been discussed at considerable length, an extended notice is here unnecessary.

W. F. K.

NO. 1871, VOL. 72]

The Gum-Bichromate Process. By J. Cruwys Richards. Pp. 119. (London: Iliffe and Sons, Ltd., n.d.) Price 2s. 6d. net.

THIS process of photographic printing is about fifty years old, but it is only during the last ten years or so that it has been adopted for practical purposes. When first introduced it was deliberately rejected, because it was not equal to the then known processes in reproducing the detail of the negative; latterly it has been taken up and very much appreciated by some of those who desire to be able to alter or "control" their photographic printing, and so obtain results that, while they can lay no claim to mechanical accuracy, more nearly please the æsthetic taste of the worker. At the present time there are more methods of photographic printing than there were a generation ago that are excellently adapted for the purposes of photography pure and simple; therefore the gum-bichromate process is still more than it was then a process for the specialist in the direction named. The author of this volume is well known as a successful worker of the method. He gives his own formulæ, and states clearly the practical details that he prefers to follow, but he also describes the methods of others. He is a warm advocate of "multiple printing"; that is, after coating the paper, exposing, developing with warm water aided with a brush or by other mechanical means, coating, exposing, and developing a second or even a third or more times, so gradually building up the picture with the maximum opportunity of "control." It will be obvious that every possibility of improvement in the hands of the skilful is a probability of error in the hands of the artistically ignorant, and that the process does not claim attention from a photographic point of view at all, but as enabling an artist to express his ideas with less trouble and perhaps with more accurate drawing than if he worked wholly by hand. The volume includes several reproductions of the author's works, some of them showing the print in its various stages of evolution.

LETTERS TO THE EDITOR.

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Recent Changes in Vesuvius.

I BEG to enclose a somewhat free translation of a letter I have recently received from Prof. G. Mercalli, of Naples, concerning certain changes which have taken place in Vesuvius this year. During a visit to the mountain on August 14-16, I was able to approach quite near to the sources of the lava streams described by him, and also to examine the remarkable tunnels formed at certain places by the cooled surface of lava streams which had subsequently diminished in volume, or had even "run dry."

During the week preceding my visit, many incandescent bombs of pasty rock had been ejected from the crater at the summit, mostly in the direction of the side facing Pompeii, and these successively rolling down the ash-slope presented a beautiful spectacle at times. The lava streams proper often presented that curious double appearance, due to the fact that the colder and darker scoriæ, floating down the stream, keep to the more swiftly-moving current in mid-stream, and avoid the sides.

Yesternight (August 20) but one of the lava streams referred to by Prof. Mercalli was visible from Naples, the other having apparently ceased.

The explosions of Stromboli are occurring at intervals of about 3½ minutes.

R. T. GÜNTHER.

R.M.S. *Oroya*, off Stromboli, August 21.